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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Sarah Young

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EXAMINER

LIANG, REGINA

ART UNIT

PAPER NUMBER

2629

MAIL DATE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/632,348	Applicant(s) YOUNG, SARAH	
	Examiner Regina Liang	Art Unit 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 March 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 6-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 6-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>3/4/08</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office Action is responsive to amendment filed 3/4/08. Claims 1, 6-25 are pending in the application.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

3. Claims 1, 6-13, 15-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Franzen (WO 02/27645 with English translation) and Wingert et al (“Hyper-Redundant Robot Manipulators Actuated by Optimized Binary Dielectric Polymers”, hereinafter Wingert) in view of Palalau (US PAT. NO. 6,373,472).

As to claims 1, 20-22, Fig. 1 of Franzen discloses a touch-sensitive display with tactile feedback, comprising a display (electronic paper S2); and an actuator layer (transparent flexible sensor mat S1) arranged on an outwardly facing side of the display and including an operating surface geometry deformable as a function of a control signal generated by at least one of a computation device (control unit μ p, see the abstract and page 10, line 14 to page 11, line 6 of the English translation).

Franzen does not disclose the actuator including a material having a reversibly and controllably changeable volume. However, it is well known in the art that actuator including a material having a reversibly and controllably changeable volume (see Wingert’s dielectric polymer actuator) so as to “achieve improved performance by incorporating an elastic passive

Art Unit: 2629

element to maintain uniform force-displacement characteristic and bi-stable action” (lines 6-9 in ABSTRACT of Wingert). Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the actuator of Franzen to have the material as taught by Wingert so as to “achieve improved performance by incorporating an elastic passive element to maintain uniform force-displacement characteristic and bi-stable action” (lines 6-9 in ABSTRACT of Wingert).

Franzen as modified by Wingert does not disclose the display is configured to display information relevant to operation of a motor vehicle. However, it is well known in the art that touch-sensitive display is widely used in different environments such as in motor vehicles to provide user friendly input interface which can be customized and personalize for the driver (e.g. Palalau col. 2 lines 5-13). For example, Figs. 1, 2, 9 of Palalau disclose a display device in a steering wheel of a motor vehicle, comprising a touch screen display (28, 32, 36) configured to display information relevant to operation of a motor vehicle. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the touch-sensitive display of Franzen as modified by Wingert to be used in the motor vehicle for providing information relevant to operation of the motor vehicle as taught by Palalau since this “provides a “hands-on”, “eyes-front” driver control interface system which minimizes the time and distance that the driver's attention is diverted from the road and the time and distance that the driver's hands are diverted from the steering wheel while operating various systems in the vehicle" via a customized and personalized user interface (col. 1, lines 24-40 of Palalau).

As to claim 6, Franzen teaches the actuator layer is transparent (transparent flexible sensor mat S1, page 8, lines 15-16 of the English translation).

As to claims 7 and 8, Franzen teaches the control signal includes an optical signal or light (see page 11, lines 9-20 of the English translation).

As to claims 9, 10. Franzen teaches the control signal includes an electrical field or an electromagnetic field (page 7, lines 14-22 of the English translation).

As to claim 11, Franzen teaches the actuator layer is statically deformable at least for duration of the control signal.

As to claims 12, 13, Franzen teaches the display is configured to receive entry of user input or an area of the actuator layer is configured to receive the entry of the user input (virtual keypad).

As to claim 15, Franzen teaches the actuator layer is controllable by haptic feedback (tactile feedback).

As to claim 16, Franzen teaches the sensor mat detecting a touch or a press at a point of the first layer and the control unit generates the control signal to deform the actuator, it is inherent that the actuator is deformable by pressure with a force that exceeds a limiting value otherwise the sensor mat can not detect a touch or a press caused by the user.

As to claims 17 and 18, Franzen teaches a computation device (control unit μ p) configured to deform the actuator layer in accordance with the control signal at a point of contact of the actuator layer touched by the user or at the point of contact only in response to an input via the display by the user by touch at the point of contact.

As to claim 19, Franzen teaches the actuator layer is configured to produce an operating element.

As to claim 23, Franzen teaches the operating surface (sensor mat layer S1) geometry is deformable in response to the control signal.

As to claim 24, Franzen teaches a computation device (control unit μ p) configured to generate the control signal, the operative surface geometry deformable in response to the control signal generated by the computation device.

As to claim 25, Franzen teaches the operating surface geometry is deformable in response to an electronic control signal.

4. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Franzen, Wingert and Palalau applied to claim 1 above, and further in view of Mulligan (US 2004/0017362).

Franzen as modified by Wingert and Palalau does not disclose the actuator layer includes a sol-gel. However, Mulligan teaches touch sensor device comprising a sol-gel ([0029]). Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the actuator layer of Franzen as modified by Wingert and Palalau to include a sol-gel as taught by Mulligan so as to protect the sensor bars of the touch sensor from damage due to a touch.

Response to Arguments

5. Applicant's arguments filed 3/4/08 have been fully considered but they are not persuasive.

Applicant's remarks regarding the combination of Franzen, Winger and Palalau on pages 7-9 are not persuasive. As clearly shown in the figure of Franzen, the actuator layer (sensor mat

S1) is arranged on an outwardly facing side of a display (electronic paper S2). Therefore, Franzen as modified by Wingert and Palalau teaches the limitation as claimed.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Regina Liang whose telephone number is (571) 272-7693. The examiner can normally be reached on Monday-Friday from 8AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Hjerpe, can be reached on (571) 272-7691. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

Art Unit: 2629

system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Regina Liang/
Primary Examiner, Art Unit 2629